ABSTRACT OF THE DISCLOSURE

5   Presented is a method and system for improving the efficiency of

network security protections communication protocols such as Secure Socket

Layer ("SSL") using enhanced Rivest-Shamir-Adleman ("RSA") encryption and

decryption techniques. During the establishment of the initial handshake of

SSL communications, where a client is coupled to a server, the server generates

10   a RSA public / private key pair. The public key is formed using two distinct

prime numbers. By reducing the size of these prime numbers and arriving at the

decrypted message using the Chinese Remainder Theorem, the efficiency of

establishing a secure communications session is increased. Likewise if during

generation of the public key, the prime numbers possess a mathematical

15   relationship to the public key such that the prime numbers are on the order of a

third of the size of the public key then the efficiency of establishing the initial

handshake is again improved.